

REMARKS

In response to the Office Action dated August 14, 2002, claims 2, 11, and 12 have been amended. Claims 1-12 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

The Applicants note that the Examiner objected to the claims presently on file under 35 USC 112, 35 USC 102 and 35 USC 103. The Applicants do not agree with the Examiner's position, and in view of the above amendments and the following arguments, asks that these objections be withdrawn.

The Examiner's objections under 35 USC 112 can be addressed as follows:

1. The Examiner's first contention under section 35 USC 112 is that claims 11 and 12 are not supported by the description.

To begin with, the Applicants note that the paragraph [0049] of page 11 - 12 makes specific reference to the computer readable memory medium recited in claim 11, and to the data signal recited in claim 12. As noted in paragraph [0049], it is standard practice to use software tools to design integrated circuits such as those described in this patent application. In fact, the Applicants used two such tools, "Cadence" and "Spectra RF", in designing the structures described in this application.

The Applicants submit that one skilled in the art would be aware of such tools, and would be able to apply them as described in the patent application, to arrive at the claimed structures. The Applicants therefore ask that this objection be withdrawn.

2. The Examiner then rejected claims 3 and 4, alleging that it was unclear what the components of the "tank circuit" were. The Applicants submit that the meaning of this term would be clear to one skilled in the art, particularly when considering the "patent as a whole", as required by law. However, in the interest of expediting this application to allowance, the Applicants have amended claim 2 as noted above,

adding the phrase: "said first and second capacitors and said inductor comprising a tank circuit".

The Applicants submit that the components of the tank circuit are now explicitly defined, and thus, claims 3 and 4 are clear and in compliance with the requirements of 35 USC 112.

3. Finally, the Examiner objected to claims 11 and 12, alleging that it was unclear how the software code related to the filter structure.

The Applicants submit that this problem has been addressed via the amendments noted above.

In the amended form, claims 11 and 12 are now independent, rather than dependent on claim 2. Thus, the logic is now consistent, as the claims no longer have a memory medium claim (claim 11) dependent on an apparatus claim (claim 2), or a data signal claim (claim 12) dependent on an apparatus claim (claim 2).

The Applicants submit therefore, that the amended claims 11 and 12 are now in compliance with the requirements of 35 USC 112, and asks that this objection be withdrawn.

With regard to the Examiner's objections under 35 USC 102 and 35 USC 103, Applicants are submitting herewith Declarations under 37 C.F.R. § 1.132 to eliminate as a reference the paper published by B. Ray, et al. titled: "A Highly Linear Bipolar 1V Folded Cascode 1.9GHz Low Noise Amplifier," IEEE BCTM 10.2, pages 157-160, 1999.

Moreover, with regard to the Examiner's rejections under 35 USC 102 and 35 USC 103, the Applicants note that none of the other prior art documents relate particularly to the subject matter of the claimed invention.

By means of background, the Applicants note that:

4. with regard to the four patents issued to Grundmann, Pawley, Tellegen and Shearer, all of these references clearly deal with discrete components in an era of vacuum tube technology.

None of these references discuss any of the following areas of the invention:

- (a) integrated circuits and/or techniques;
- (b) designing integrated inductors in combination with capacitors;
- (c) placing integrated components on an underlying resistive substrate (opposed to a dielectric as done in discrete design);
- (d) implementation of variable capacitors;
- (e) using low Q-integrated (i.e. 7-10) elements (in discrete designs Q's are in the order of 20-40); or circuits which are operable in the GHz range.

These references are so remote from the invention that they cannot be considered relevant in an obviousness or anticipation argument.

5. United States Patent No. 5,697,087 issuing to Miya et al., describes a device that is quite different from that of the invention. For example, Miya et al.:

- (a) do not describe the circuit as defined in any of the claims;
- (b) generally describe band pass filters, while the invention is focussed more on notching filters; and
- (c) do not describe circuitry to increase the Q of the filter — Q is determined by the Q of the components, and can only be increased by increasing the number of tank elements (per Figure 8).

6. The Examiner has not applied US Patent No. 5,105,172 issuing to Khatibzadeh et al. against the claims, but the Applicants wish to address it in the interest of avoiding its application in a future office action.

The Applicants submit that this reference describes an integrated form of a RF bias choke. This circuit is not used as a RF filter, but as a RF bias choke -- i.e. it filters off the DC component of the RF from entering the device and supplies its own DC bias thru an integrated choke (i.e. a large valued integrated inductor). Thus, it is quite different from the claimed filters of the invention.

More important, the Applicants note that Khatibzadeh et al. have obtained a patent for the integrated form of an electrical circuit that had been known for decades before the date of their invention. This is logical, as it is clearly not obvious how an older design could be employed in an integrated environment, let alone that it would operate effectively. The Applicants therefore submit that the patent to Khatibzadeh et al. serves as evidence in favour of the Applicants' invention being patentable.

7. The Examiner has not applied US Patent No. 5,121,078 awarded to Havot et al., against the claims, but again, the Applicants wish to address it in the interest of avoiding its application in a future office action.

The Applicants note that the Havot patent is not relevant to the invention as it does not describe a circuit integrated on an IC. The circuit described by Havot et al. is placed on a PCB board using micro-ribbon technology (this is clear from the Abstract, description, and from Figures 15 and 16). Micro-ribbon technology is very different from integrated circuit technology and one would not expect teachings from one area to literally apply in the other.

The Examiner alleged that under 35 USC 102, claims 2 - 4 were "anticipated" by either the Grundmann patent or the Pawley patent, noting that he did not give any weight to the limitation of "An integrated RF filter". The Applicants submit that this is not a correct construction of claims 2 - 4. Properly construed, each of claims 2 - 4 is novel in view of the cited references, as these two references simply do not recite all of the limitations of claims 2 - 4. The Applicants submit that, therefore, this objection should be withdrawn.

Clearly, the circuits described in the Grundmann patent and the Pawley patent are different from those of the claimed invention, at least because they employ discrete components using vacuum tube technology. The question is therefore whether claims 2 - 4 are to be considered limited to integrated circuit technology. The Applicants note that: s

8. section 2111.02 of the MPEP (Manual of Patent Examining Procedure) reads that:  
"The preamble is not given the effect of a limitation unless it breathes life and meaning into the claim." (emphasis added)

In this case, the Applicants clearly intend to distinguish the invention (integrated RF filters) from the discrete components and vacuum tube technology of the cited references (see for example, paragraphs [0011] - [0012] on pages 3 - 4 which clearly preclude discrete devices). Thus, the "integrated" limitation must be considered limiting on the claims;

9. the claims are also to be read "in light of the specification" as noted in section 2111.01 of the MPEP. Again, the specification clearly draws a line between discrete and integrated technologies; and
10. most importantly, a proper construction of claim 2 places the "integrated" limitation squarely in the claim, and this argument is supported by case law.

The term "an integrated RF filter" is incorporated in the body of the claim each time the term "said filter" is recited in the body of the claim (at lines 2 - 3, and line 4 of claim 2, for example). A court decision that is right on point is the decision of the Federal Circuit court in Bell Communications Research v. Vitalink Communications Corp. 34 USPQ2d 1816 (Fed. Cir. 1995) which stated that a claim with a body which expressly refers back to an element in the preamble incorporates by reference the preamble phrase (e.g. by saying "said [element]").

Thus, the limitation of "an integrated RF filter" is clearly part of the body of the claim.

In view of these requirements, the claims should be considered to be limited to integrated RF applications, which clearly distinguishes the invention of claims 2 - 4 from the Grundmann and Pawley patents. The Applicants therefore ask that this objection under 35 USC 102 be withdrawn.

Finally, the Examiner objected to the balance of the claims (1 and 5 - 12) under 35 USC 103, as obvious in view of the Grundmann and Pawley patents, in combination with either the Miya patent or the Ray disclosure.

As noted above, Applicants are submitting herewith Declarations under 37 C.F.R. § 1.132 to eliminate as a reference the paper published by B. Ray, et al. titled: "A Highly Linear Bipolar 1V Folded Cascode 1.9GHz Low Noise Amplifier," IEEE BCTM 10.2, pages 157-160, 1999. Thus, this reference is not citable under 35 USC 103. This reduces the question of obviousness to whether the subject claims are obvious in view of either the Grundmann or Pawley patents, in combination with the Miya patent.

The Applicants note that the two tests for obviousness as outlined in section 706.02 (j) of the Manual of Patent Examination Procedure (MPEP) read as follows:

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." (emphasis added); and

"The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a

convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)." (emphasis added)

The Applicants do not believe that either test has been satisfied.

Further, the Applicants submit that claim 1 and 5 - 12 are not obvious in view of the cited references for at least the following reasons:

11. there is no suggestion or motivation for one of ordinary skill in the art, to seek out either the Grundmann or Pawley patents in an effort to address the problem of the invention. Clearly, the Grundmann or Pawley patents are from so remote an area of technology (vacuum tubes and discrete technology), that they would not be expected to be applicable in the area of integrated RF technology.

The current teaching in the art of RF technology is moving in a different direction than that of the invention. As explained in paragraphs [0010] - [0012] and at the end of paragraph [0012], SAW filters are generally used in the art rather than passive or active LC filters. Because of this, one would not expect a skilled technician to go against the current teachings in the art (toward SAW filters) and attempt to improve on discrete LC filters;

12. there is enough difficulty modifying recent developed integrated RF designs to behave as desired, let alone attempting to transfer the 50 year old technology of the Grundmann or Pawley patents into an integrated RF environment. There would simply be no reasonable expectation of success as required by the test in the MPEP;
13. none of the three cited references recite an integrated resistor, thus, the requirement that the prior art references must teach or suggest all the claim limitations, has not been met; and

14. most important, the components of the claimed invention offer a synergy that is not expressly or impliedly suggested by the cited references. Because of this synergy, it could not be held that the necessary convincing line of reasoning exists, to combine the references as suggested by the Examiner.

Specifically, the circuit as described in each of claims 1 and 5 - 12 has the property that it offers a high-Q circuit using low-Q integrated components. This property is described in paragraphs [0036] and [0037]. None of the three cited references lead the reader to a circuit which has this property.

As noted above, Miya et al. teach a low-Q filter using low-Q components. While the Grundmann and Pawley patents describe a similar arrangement of components, they do not discuss integration at all. Thus, they do not teach a high-Q circuit using low-Q integrated components.

Thus, the Applicants submit that the test for obviousness has not been satisfied, and the Applicants request that the Examiner withdraw this objection under 35 USC 103.

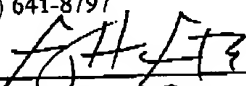
In view of the above amendments and remarks and having dealt with all the objections raised by the Examiner, reconsideration and allowance of the subject patent application is courteously requested.

Respectfully submitted,

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## APPENDIX: CLAIMS IN MARKED-UP FORM

2. (AMENDED) An integrated RF filter for use at microwave frequencies comprising:  
first and second capacitors connected in series between an input and an output of said filter;  
an inductor, connected between said input and said output of said filter, in parallel to said  
series connected capacitors, said first and second capacitors and said inductor comprising a tank  
circuit; and  
a shunt resistor connected between ground, and the common side of said first and second  
capacitors.

11. (AMENDED) A computer readable memory medium, storing computer software code  
in a hardware development language for fabrication [of an integrated circuit comprising the filter of  
claim 2] of an integrated RF filter for use at microwave frequencies comprising:  
first and second capacitors connected in series between an input and an output of said filter;  
an inductor, connected between said input and said output of said filter, in parallel to said  
series connected capacitors, said first and second capacitors and said inductor comprising a tank  
circuit; and  
a shunt resistor connected between ground, and the common side of said first and second  
capacitors.

12. (AMENDED) A computer data signal embodied in a carrier wave, said computer data  
signal comprising computer software code in a hardware development language for fabrication [of  
an integrated circuit comprising the filter of claim 2] of an integrated RF filter for use at microwave  
frequencies comprising:  
first and second capacitors connected in series between an input and an output of said filter;  
an inductor, connected between said input and said output of said filter, in parallel to said  
series connected capacitors, said first and second capacitors and said inductor comprising a tank  
circuit; and  
a shunt resistor connected between ground, and the common side of said first and second  
capacitors.